

**TOWN OF WATERTOWN
CONTRIBUTORY RETIREMENT SYSTEM**

Actuarial Valuation Report

January 1, 2004

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Report Summary:

<u>Highlights</u>	<u>January 1, 2002</u>	<u>January 1, 2004</u>
<u>Contributions</u>		
Funding Schedule FY 2005	\$5,551,000	\$5,551,000
Funding Schedule FY 2006	5,682,000	6,484,544
<u>Funded Ratios</u>		
GAS No. 25	63.4%	60.1%
<u>Participants</u>		
Actives	531	522
Inactives	137	157
Retirees and Beneficiaries	367	361
Disabilities	<u>86</u>	<u>82</u>
Total	1,121	1,122
<u>Payroll</u>		
Payroll of Active Members	\$19,735,159	\$21,673,650
Average Payroll	37,166	41,520
<u>Normal Cost</u>		
Employer	529,139	1,214,111
Employee	1,624,260	1,786,702
Administrative Expenses	<u>275,000</u>	<u>200,000</u>
Total	2,428,399	3,200,813
<u>Actuarial Accrued Liabilities</u>		
Actives	45,356,314	47,341,065
Retirees, Beneficiaries, Disabilities and Inactives	<u>66,138,071</u>	<u>73,358,404</u>
Total	111,494,385	120,699,469
<u>Actuarial Value of Assets</u>	<u>70,633,407</u>	<u>72,563,856</u>
<u>Unfunded Actuarial Accrued Liabilities</u>	\$40,860,978	\$48,135,613

Introduction

This report presents the Town of Watertown actuarial valuation findings as of January 1, 2004, under the Commonwealth of Massachusetts Retirement System.

The actuarial valuation is based on:

- Provisions Chapter 32 of the Massachusetts General Laws, "M.G.L", as of January 1, 2004.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employees Retirement Administration Commission by the Town of Watertown Contributory Retirement System
- Actuarial assumptions approved by the Retirement Board

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2004.

The valuation and forecast do not account for:

- Any subsequent changes in the law
- Chapter 32 of the M.G.L., Section 3(8)(c) transfers between systems
- State-mandated benefits
- Cost-of-living increases granted to retired members between 1982 and 1997. The cost of these benefits has been assumed by the State under Proposition Two and One-Half.

Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding such factors as mortality, retirement, disability, and withdrawal rates as well as both payroll, salary increases, and investment returns. A comparison of the current valuation and the prior valuation is made to determine how closely actual experience corresponded to anticipated occurrences. This analysis of the system provides insight into the overall quality of the actuarial assumptions and helps explain any change in the annual appropriation.

During the last year since the last actuarial valuation, the total unfunded actuarial accrued liability increased by 17.80% to \$48,135,613. The increase is the result of net unfavorable actuarial experience during the preceding two years. The primary components of the unfavorable experience was an annual investment return lower than the 8.0% assumption and salary increases greater than the 5.00% assumption.

Actuarial Costs and Liabilities:

Normal Costs

The normal cost is the sum of the individual normal costs determined for each member as if the assumptions underlying the cost determinations had been exactly realized. An individual normal cost represents that part of the cost of a member's future benefits which are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and terminations) are included in this calculation. Anticipated employee contributions to be made during the year are subtracted from the total normal cost to determine employer normal cost. The total normal cost is divided by total payroll to determine the normal cost as a percent of pay. The normal cost is shown in Table I.

Table I

	<u>January 1, 2002</u>	<u>January 1, 2004</u>
Superannuation	\$1,423,544	\$2,067,779
Death	100,012	134,184
Disability	317,332	561,018
Terminations	312,511	237,832
Administrative Expenses	<u>275,000</u>	<u>200,000</u>
Total Normal Cost	2,428,399	3,200,813
% of Pay	12.3%	14.8%
Employee Contributions	1,624,260	1,786,702
% of Pay	8.2%	8.2%
Employer Normal Cost	\$804,139	\$1,414,111
% of Pay	4.1%	6.5%

Present Value of Actuarial Accrued Liabilities

The actuarial accrued liabilities (AAL) represents today's value of all benefits earned by the actives and inactive. The AAL can be compared to the assets to determine the funded status of the Plan. The value of these earned benefits is shown in Table II below.

Table II

	<u>January 1, 2002</u>	<u>January 1, 2004</u>
Actives		
Superannuations	\$39,995,703	\$43,545,985
Death	1,476,222	\$1,177,681
Disability	3,619,480	\$3,344,103
Terminations	264,909	(\$726,704)
Retirees and Inactives		
Retirees	52,980,686	58,078,348
Disabled Retirees	12,511,311	14,437,045
Inactives	<u>646,074</u>	<u>843,011</u>
Total	\$111,494,385	\$120,699,469

Present Value of Future Benefits

The present value of future benefits represents today's value of all benefits earned by the inactivees as well as all benefits earned and expected to be earned in the coming years by the activees. The difference between the present value of future benefits and the present value of actuarial accrued liabilities is the value of benefits to be earned in the coming years. The value of the total expected benefits is shown in Table III.

Table III

	<u>January 1, 2002</u>	<u>January 1, 2004</u>
Activees		
Superannuation	\$52,645,637	\$64,336,442
Death	2,366,032	2,485,041
Disability	6,706,243	8,893,308
Terminations	2,930,837	1,652,026
Retirees and Inactivees		
Retirees	52,980,686	58,078,348
Disabled Retirees	12,511,311	14,437,045
Inactivees	<u>646,074</u>	<u>843,011</u>
Total	\$130,786,820	\$150,725,221

Funded Status and Appropriations:

Market Value of Plan Assets

The trust fund composition on a market value basis is shown in Table IV.

Table IV

	<u>January 1, 2002</u>	<u>January 1, 2004</u>
Cash equivalents	97,144	\$219,339
Short term investments	725,421	512,908
Fixed income securities	17,018,091	20,132,028
Equities	30,780,443	30,514,183
International	8,902,605	9,662,194
Real Estate	4,552,666	4,810,349
Venture Capital	0	0
Other	1,828,787	1,674,135
Accounts receivable	187,058	123,812
Accounts payable	(36,791)	(8,637)
Accrued income	<u>156,764</u>	<u>36,775</u>
Total Market Value	\$64,212,188	\$67,677,088
Total Actuarial Value	\$70,633,407	\$72,563,856

Actuarial Value of Assets

The actuarial value of assets is determined by projecting the market value of assets as of the beginning of the prior plan year with the assumed rate of return during that year (8.0%) and accounting for deposits and disbursements with interest at the assumed rate of return. An adjustment is then applied to recognize the difference between the actual investment return and expected return over a five year period. This preliminary actuarial value is not allowed to differ from the market value of assets by more than 10%. The calculation of the actuarial value of assets as of January 1, 2004 is presented in Table V.

Table V

	<u>January 1, 2004</u>
(1) Market value at January, 1, 2003	\$57,241,540
(2) 2003 Contributions	7,795,475
(3) 2003 Benefit payments	(9,096,113)
(4) Net interest adjustment at 8.0% on (1), (2), and (3) to December 31, 2003	4,527,298
(5) Expected market value on January, 1, 2004 (1) + (2) + (3) + (4)	<u>\$60,468,199</u>
(6) Actual market value on January, 1, 2004	\$67,677,088
(7) 2003 Gain	(7,208,888)
(8) 80% of 2003 gain	(5,767,111)
(9) 2002 Loss	11,921,894
(10) 60% of 2002 loss	7,153,136
(11) 2001 Loss	6,316,523
(12) 40% of 2001 loss	2,526,609
(13) 2000 Loss	4,870,668
(14) 20% of 2000 loss	<u>974,134</u>
(15) Actuarial value on January, 1, 2004 (6) + (8) + (10) + (12) + (14) but not less than 90% or more than 110% of (6)	\$72,563,856
(12) Ratio of actuarial value to market value	107.22%

Unfunded Actuarial Accrued Liabilities

Under the Entry Age Normal Actuarial Cost Method, the Actuarial Accrued Liability represents what the accumulated assets would have been as of the valuation date if:

- current plan provisions and assumptions had always been in effect,
- experience conformed exactly to assumptions, and
- the normal cost had been contributed each year since inception.

The actuarial value of the Fund's assets as of the end of the prior year are subtracted from the Actuarial Accrued Liability (AAL) to determine the Unfunded Actuarial Accrued Liability (UAAL) as of the valuation date. Over time, annual pension contributions will accumulate Plan assets equal to the AAL, and the UAAL will be eliminated. Thereafter, annual contributions equal to the normal cost will keep the Plan's assets and liabilities in balance. The UAAL is developed in Table VI.

Table VI

	<u>January 1, 2002</u>	<u>January 1, 2004</u>
Actuarial Accrued Liability	\$111,494,385	\$120,699,469
Actuarial Assets	<u>70,633,407</u>	<u>72,563,856</u>
Unfunded Actuarial Accrued Liability	\$40,860,978	\$48,135,613
Funded Status	63.4%	60.1%

Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2028, full funding mandate for all accrued liabilities. The pension appropriation is the sum of the:

- Employer normal cost,
- Increasing amortization of the prior unfunded actuarial accrued liability by June 30, 2019
\$ 47,649,490 over 15 years with 2.5 % increasing payments
- Level amortization of the Early Retirement Incentive unfunded liability by June 30, 2008
\$ 486,123 over 4 years
- Interest adjustment for payments deposited at the beginning of the fiscal year.

The pension appropriation is shown in Table VII.

Table VII

	<u>January 1, 2002</u>	<u>January 1, 2005 *</u>
Normal cost	\$804,139	\$1,455,527
Amortization payment of the prior accrued liability	4,146,975	4,648,330
Amortization payment of ERI	141,230	135,899
Amortization of 90A/90C liability	<u>0</u>	<u>0</u>
Total cost	\$5,092,344	\$6,239,756
% of Pay	25.8%	28.8%
Fiscal 2005 cost	\$5,551,000	\$5,551,000
Fiscal 2006 cost	\$5,682,000	\$6,484,544
Fiscal 2007 cost	\$5,816,000	\$6,649,250

* January 1, 2004 results rolled forward to January 1, 2005

Appropriation Forecast

The following exhibit forecasts employer and employee contributions over the next 32 years under the adopted funding schedule.

Note that the forecast is based upon an "open group" method. This method assumes that sufficient employees will be hired each year to keep the number constant. The total payroll of the system is expected to increase 4.5% per year. The employee contribution rate is expected to increase to 10.5% by 2028 as members contributing base percentages 5%, 7%, and 8% are replaced by new members, whose base contribution is 9%. Payments are assumed to be made at the beginning of the year.

The employer total cost is expected to increase during the next 15 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total cost increase represents on average about 25.6% of payroll and will decrease to 21.9% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of 5.3% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.

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Appropriation Forecast
(amounts in thousands)

Fiscal Year Ending	Employee Payroll*	Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Funded Ratio %**
2005	\$21,674	\$1,787	\$1,470	\$4,081	\$5,551	25.6	60.1
2006	22,649	1,889	1,513	4,972	6,485	28.6	61.7
2007	23,668	1,998	1,557	5,093	6,649	28.1	64.0
2008	24,733	2,112	1,601	5,216	6,818	27.6	66.4
2009	25,846	2,232	1,647	5,202	6,849	26.5	68.9
2010	27,009	2,359	1,694	5,332	7,026	26.0	71.4
2011	28,225	2,493	1,741	5,465	7,207	25.5	74.0
2012	29,495	2,634	1,789	5,602	7,392	25.1	76.7
2013	30,822	2,783	1,839	5,742	7,581	24.6	79.4
2014	32,209	2,940	1,888	5,886	7,774	24.1	82.2
2015	33,659	3,105	1,939	6,033	7,972	23.7	85.0
2016	35,173	3,279	1,990	6,184	8,174	23.2	87.9
2017	36,756	3,463	2,043	6,338	8,381	22.8	90.9
2018	38,410	3,656	2,095	6,497	8,592	22.4	93.9
2019	40,138	3,860	2,149	6,659	8,808	21.9	96.9
2020	41,945	4,075	2,203	0	2,203	5.3	100.0
2021	43,832	4,301	2,257	0	2,257	5.1	100.0
2022	45,805	4,540	2,312	0	2,312	5.0	100.0
2023	47,866	4,791	2,367	0	2,367	4.9	100.0
2024	50,020	5,056	2,423	0	2,423	4.8	100.0
2025	52,271	5,335	2,478	0	2,478	4.7	100.0
2026	54,623	5,628	2,534	0	2,534	4.6	100.0
2027	57,081	5,937	2,590	0	2,590	4.5	100.0
2028	59,649	6,263	2,646	0	2,646	4.4	100.0
2029	62,334	6,545	2,765	0	2,765	4.4	100.0
2030	65,139	6,840	2,889	0	2,889	4.4	100.0
2031	68,070	7,147	3,019	0	3,019	4.4	100.0
2032	71,133	7,469	3,155	0	3,155	4.4	100.0
2033	74,334	7,805	3,297	0	3,297	4.4	100.0
2034	77,679	8,156	3,446	0	3,446	4.4	100.0
2035	81,175	8,523	3,601	0	3,601	4.4	100.0
2036	84,828	8,907	3,763	0	3,763	4.4	100.0

* Calendar basis

** As of beginning of the Fiscal Year

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GAS No. 25 and GAS No. 27

Effective for periods beginning after June 15, 1997, the Governmental Accounting Standards Board (GASB) requires the disclosure of pension related liabilities for public employer financial statements in accordance with Statements 25 and 27. These statements, which replace GASB Statement No. 5, must be adhered to by any public employee retirement system that follows Generally Accepted Accounting Principles (GAAP).

These disclosures are intended to establish a reporting framework that distinguishes between:

- current financial information about plan assets and financial activities,
- actuarially determined information from a long-term perspective,
- the funded status of the plan, and
- progress being made in accumulating sufficient assets to pay benefits when due.

Footnote disclosures required by GASB Statement No. 25 and 27 include a description of the plan, a summary of significant accounting policies, and information about contributions, legally required reserves, and investment concentrations. As a result of the oversight of the Public Employees Retirement Administration Commission (PERAC) and the conversion of unpaid contributions to pension related debt, the Net Pension Obligation (NPO) as required by Statement No. 27 will effectively always be equal to \$0. The required disclosure information is shown in Table VIII.

Table VIII

	<u>January 1, 2002</u>	<u>January 1, 2004</u>
(1) Actuarial Accrued Liability	\$111,494,385	\$120,699,469
(2) Actuarial Value of Assets	<u>70,633,407</u>	<u>72,563,856</u>
(3) Unfunded Actuarial Accrued Liability	40,860,978	48,135,613
(4) Funded Ratio (2)/(1)	63.4%	60.1%
(5) Covered Payroll	\$19,735,159	\$21,673,650
(6) UAAL as a percentage of payroll: (3)/(5)	207.0%	222.1%
(7) Annual Required Contribution (ARC)	\$5,296,038	\$5,551,000
(8) Net Pension Obligation	\$0	\$0

PERAC Annual Statement
APPENDIX PAGE 3
ACTUARIAL VALUATION AND ASSUMPTIONS

The most recent actuarial valuation of the System was prepared by Mellon Human Resources & Investor Solutions as of January 1, 2004.

The normal cost for employees on that date was:	\$1,786,702	8.2% of pay
The normal cost for the employer was:	1,214,111	5.6% of pay
The actuarial liability for active members was:		\$47,341,065
The actuarial liability for retired members was:		73,358,404
Total actuarial accrued liability:		120,699,469
System assets as of that date:		72,563,856
Unfunded actuarial accrued liability:		\$48,135,613

The ratio of system's assets to total actuarial liability was 60.1%

The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	8.0%
Rate of Salary Increase:	5.0%

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded Actuarial Accrued Liability (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a percent of Covered Payroll (b-a)/c
01/01/03	\$72,563,856	\$120,699,469	\$48,135,613	60.1%	\$21,673,650	222.1%
01/01/02	70,633,407	111,494,385	40,860,978	63.4%	19,735,159	207.0%
01/01/01	66,804,435	100,876,281	34,071,846	66.2%	19,379,204	175.8%
01/01/00	67,485,797	93,900,795	26,414,998	71.9%	18,231,939	144.9%
01/01/99	56,172,432	90,052,933	33,880,501	62.4%	15,732,197	215.4%

Attach Copy of Current Approved Funding Schedule

EXHIBITS

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Age/Service Distribution with Salary as of January 1, 2004

Attained Age	Average Salary									Total
	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
< 20	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
20-24	9	0	0	0	0	0	0	0	0	9
	27,563	0	0	0	0	0	0	0	0	27,563
25-29	38	0	0	0	0	0	0	0	0	38
	39,347	0	0	0	0	0	0	0	0	39,347
30-34	37	19	1	0	0	0	0	0	0	57
	47,930	52,422	36,050	0	0	0	0	0	0	49,219
35-39	19	16	13	3	0	0	0	0	0	51
	34,878	42,166	54,153	47,707	0	0	0	0	0	42,832
40-44	22	14	12	14	2	0	0	0	0	64
	26,994	34,592	55,418	55,798	86,684	0	0	0	0	42,152
45-49	24	27	21	18	17	5	0	0	0	112
	27,835	30,997	36,859	52,936	61,406	72,151	0	0	0	41,398
50-54	13	16	12	9	4	14	3	0	0	71
	23,916	32,243	31,371	49,269	61,744	67,352	61,826	0	0	42,564
55-59	13	10	9	10	5	8	7	6	1	69
	30,557	37,713	35,018	37,229	52,558	61,727	63,583	58,593	49,331	44,411
60-64	8	7	3	8	3	2	0	3	0	34
	30,519	34,272	22,583	24,964	29,503	39,115	0	61,009	0	32,391
65-69	5	2	0	0	0	0	0	0	0	7
	23,084	42,037	0	0	0	0	0	0	0	28,499
70+	0	1	0	3	3	1	0	1	0	9
	0	33,839	0	37,638	14,213	40,972	0	53,882	0	31,583
Total Employees	188	112	71	65	34	30	10	10	1	521
Average Salary	34,622	37,881	41,387	46,238	54,652	63,890	63,056	58,847	49,331	41,725

Retiree Distribution as of January 1, 2004

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	0	0	0	0	0	0
45-49	0	0	0	0	0	0
50-54	2	0	2	36,504	0	36,504
55-59	25	3	28	1,092,363	23,558	1,115,921
60-64	28	11	39	804,364	131,068	935,432
65-69	31	8	39	874,456	85,405	959,861
70-74	36	24	60	846,610	283,339	1,129,949
75-79	44	20	64	885,990	194,623	1,080,613
80-84	40	28	68	629,600	234,760	864,360
85-89	23	17	40	312,553	120,191	432,744
90-94	4	13	17	43,515	114,815	158,331
95-99	1	3	4	3,781	17,908	21,689
Total	234	127	361	5,529,735	1,205,669	6,735,404
Average (Age/Payment)	73.4	78.7	75.2	23,631	9,493	18,658
Frequency Percent	64.8	35.2	100	82.1	17.9	100

Disabled Retiree Distribution as of January 1, 2004

Attained Age	Number of Employees			Total Payments		
	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	1	0	1	10,115	0	10,115
40-44	0	0	0	0	0	0
45-49	2	0	2	47,541	0	47,541
50-54	3	0	3	80,474	0	80,474
55-59	10	1	11	260,601	26,871	287,472
60-64	10	0	10	270,533	0	270,533
65-69	8	0	8	168,083	0	168,083
70-74	17	0	17	384,276	0	384,276
75-79	17	1	18	390,287	4,103	394,390
80-84	8	0	8	124,938	0	124,938
85-89	2	0	2	30,911	0	30,911
90-94	2	0	2	29,868	0	29,868
95-99	0	0	0	0	0	0
Total	80	2	82	1,797,627	30,974	1,828,601
Average (Age/Payment)	70	66.9	69.9	22,470	15,487	22,300
Frequency Percent	97.6	2.4	100	98.3	1.7	100

EXHIBIT 4 - CASHFLOW FORECAST:

The following is a 30 year forecast of benefit payments net of state reimbursable COLA payments, Contribution Income and Investment Returns.

Plan Year Ending	Benefit Payments	Employee Contributions	Employer Contributions	Investment Returns	Net change in plan assets
2004	\$8,639	\$1,787	\$5,551	\$5,611	\$4,310
2005	8,781	1,889	6,485	5,985	5,578
2006	8,932	1,998	6,649	6,430	6,145
2007	9,101	2,112	6,818	6,921	6,750
2008	9,307	2,232	6,849	7,452	7,226
2009	9,547	2,359	7,026	8,026	7,864
2010	9,830	2,493	7,207	8,650	8,520
2011	10,169	2,634	7,392	9,324	9,181
2012	10,503	2,783	7,581	10,052	9,913
2013	10,832	2,940	7,774	10,838	10,720
2014	11,192	3,105	7,972	11,688	11,573
2015	11,572	3,279	8,174	12,606	12,487
2016	11,968	3,463	8,381	13,596	13,472
2017	12,442	3,656	8,592	14,663	14,469
2018	12,920	3,860	8,808	15,809	15,557
2019	13,400	4,075	2,203	16,775	9,653
2020	13,851	4,301	2,257	17,531	10,238
2021	14,313	4,540	2,312	18,333	10,872
2022	14,772	4,791	2,367	19,187	11,573
2023	15,200	5,056	2,423	20,098	12,377
2024	15,620	5,335	2,478	21,073	13,266
2025	16,033	5,628	2,534	22,121	14,250
2026	16,430	5,937	2,590	23,248	15,345
2027	16,832	6,263	2,646	24,462	16,539
2028	17,209	6,545	2,765	25,771	17,872
2029	17,553	6,840	2,889	27,188	19,364
2030	17,826	7,147	3,019	28,727	21,067
2031	18,077	7,469	3,155	30,403	22,950
2032	18,296	7,805	3,297	32,231	25,037
2033	18,910	8,156	3,446	34,210	26,902

amounts in thousands

EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2004, and does not take into account any subsequent changes.

1. Administration

Each of the 107 contributory retirement systems for public employees for the Commonwealth of Massachusetts are guided by the applicable provisions of Chapter 32 of the Massachusetts General Laws and other applicable statutes. Although these boards operate semi-independently, there is a uniform set of rules governing benefits, eligibility, contributions, financing, and accounting.

2. Participation

Participation is mandatory for all full-time employees whose employment commences prior to age 65. Eligibility with respect to part-time, professional, temporary, or intermittent employment is governed by the local board. Membership is optional for certain elected officials, State officials appointed by the Governor, and certain hospital interns.

There are four classes of membership as follows:

- (i) Group 1: Most general employees in State and local government
- (ii) Group 2: Certain specified hazardous duty positions
- (iii) Group 3: State police officers and inspectors
- (iv) Group 4: Local police officers, firefighters, and designated employees of the municipal light department.

For members in more than one group, participation will be proportional.

3. **Salary**

Salary is defined as gross regular compensation. Salary does not include bonuses, overtime, severance pay, unused sick leave credit, or other similar compensation.

4. **Member Contributions**

Member contributions vary depending upon date hired as follows:

<u>Date of Hire</u>	<u>Member Contribution Rate</u>
Prior to 1975	5.0% of Salary
1975 to 1983	7.0% of Salary
1984 to 1996	8.0% of Salary
1996 and Later plus	9.0% of Salary
1979 and Later	2.0% of Salary in excess of \$30,000

5. **Average Salary**

Average salary is used to determine a participant's benefit. It is defined as the average salary during the three consecutive-year period that produces the highest average. (Alternatively, if a greater amount results, it is the average rate of salary earned during the period or periods, whether or not consecutive, that constitutes the last three years preceding retirement.)

6. **Creditable Service**

In general, creditable service is awarded during the period in which a member contributes to the retirement system.

7. Service Retirement

a. Eligibility:

For an employee to be eligible for service retirement (also referred to as superannuation), one of the following conditions must be met:

- (i) completion of 20 years of service
- (ii) for an employee hired prior to January 1, 1978, attainment of age 55 as an active member
- (iii) for an employee hired on or after January 1, 1978, attainment of age 55 as an active member and completion of ten years of service
- (iv) if an employee is a State Police officer (Group 3), attainment of age 50

b. Benefit Amount:

The retirement allowance is determined as a product of the participant's Benefit Rate times Average Salary times Creditable Service, where Benefit Rate is determined from the following table:

<u>Age at Retirement</u>	<u>Percentage of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
65 or Over	.025	.025	.025
64	.024	.025	.025
63	.023	.025	.025
62	.022	.025	.025
61	.021	.025	.025
60	.020	.025	.025
59	.019	.024	.025
58	.018	.023	.025
57	.017	.022	.025
56	.016	.021	.025
55	.015	.020	.025
54	.014	.014	.024
53	.013	.013	.023
52	.012	.012	.022
51	.011	.011	.021
50	.010	.010	.020
49	.009	.009	.019
48	.008	.008	.018
47	.007	.007	.017
46	.006	.006	.016
45	.005	.005	.015
44	.004	.004	.004
43	.003	.003	.003
42	.002	.002	.002
41	.001	.001	.001

For Group 3 (State Police), the benefit is 50% of the participant's final year's rate of regular salary, plus an additional 1% for each year of service in excess of 20 years. In addition, for veterans (all groups) there is an additional benefit of \$15 per year for each year of service, up to a maximum of 20 years of service.

8. Deferred Vested Retirement

a. Eligibility:

A participant who has completed ten or more years of creditable service is eligible for a deferred vested retirement benefit. If termination is involuntary, the participant is vested after six years.

b. Benefit Amount:

The participant's accrued benefit is payable commencing at age 55, or may be deferred until later at the employee's option.

c. Refund of Contributions:

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated contributions. Members with ten or more years of service are entitled to 100% of the credited interest on their contributions. Members with five to ten years of service are entitled to 50% of the credited interest on their contributions. No credited interest is provided for members with less than five years of service.

9. Accidental Disability

a. Eligibility:

Participants are eligible for an accidental disability benefit, regardless of service or age, if they become permanently and totally incapacitated for further duty as a result of personal injury sustained while in the performance of duties.

b. Benefit Amount:

The accidental disability amount is 72% of annual salary plus \$450 per year for each child plus an additional annuity based upon accumulated Member Contributions with credited interest.

10. **Ordinary Disability**

a. **Eligibility:**

An ordinary disability occurs when a member becomes permanently and totally disabled due to sickness or injury that is not job related. In order to be eligible for an ordinary disability benefit, a member must have ten years of service (and be less than age 55).

b. **Benefit Amount:**

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55. If the member was a veteran, the benefit is 50% of the member's final rate of Salary during the preceding 12 months, plus an annuity based upon accumulated Member Contributions plus credited interest. If the participant is over age 55, he will receive not less than the superannuation allowance to which he is entitled.

11. **Survivor Benefits**

a. **Occupational Death:**

The survivors of a member who dies due to an occupational injury will be entitled to a lump sum return of contributions plus a pension benefit equal to 72% of the participant's annual Salary.

b. **Non-Occupational Death:**

Upon the death of a member other than due to an occupational injury, the designated beneficiary will be entitled to a retirement benefit as if Option C had been elected with a minimum of \$250 per month to the surviving spouse, plus \$120 for the first child, plus \$90 for each additional child. If no beneficiary is designated and if the employee worked two years, and is married at least one year, the spouse may elect benefits. If there is no designated beneficiary or surviving spouse, then member contributions are returned. If there are dependent children but no surviving spouse, they may elect minimum survivor benefits of \$250 per month plus \$120 for the first child and \$90 for each additional child.

c. Refund of Contributions:

Upon the death of a member not entitled to survivor benefits, the beneficiary is entitled to a refund of all member contributions with interest.

12. Cost-of-Living Increases

In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a cost-of-living adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees, and beneficiaries who have been receiving benefits payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is \$12,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the State and are not the liability of the Retirement System.

13. Postretirement Death Benefits

Any benefits following the death of a member after retirement are based upon the form of benefit the participant elected at the time of retirement. There are three available forms as follows:

- (i) Option A – Life annuity
- (ii) Option B – Life annuity with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member
- (iii) Option C – Life annuity with 66-2/3% of benefit continued after death of member to designated joint annuitant

EXHIBIT 6 – ACTUARIAL METHODS AND ASSUMPTIONS:

The actuarial cost method, factors, and assumptions used in determining cost estimates are presented below.

1. **Member Data**

The member data used in the determination of cost estimates consist of pertinent information with respect to the active, inactive, retired, and disabled members of the employer as supplied by the employer to the actuary.

2. **Valuation Date**

January 1, 2004.

3. **Actuarial Cost Method**

The costs of the Plan have been determined in accordance with the individual entry age normal actuarial cost method.

4. **Rate of Investment Return**

It is assumed that the assets of the fund will accumulate at a compound annual rate of 8.00% per annum.

5. **Salary Scale**

It is assumed that salaries including longevity will increase at a rate of 5.00% per year.

6. **Cost-of-Living Increases**

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and \$12,000 per year.

7. Value of Investments

Assets held by the fund are valued at market value as reported by the Public Employees' Retirement Administration Commission (PERAC). The actuarial value of assets is determined using a five-year smoothing of market value of asset gains and losses.

8. Annual Rate of Withdrawal Prior to Retirement

Based on an analysis of experience, the assumed annual rates of withdrawal may best be illustrated by the following rates at the following ages:

<u>Service</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
0	0.1500	0.0150
10	0.0540	0.0150
20	0.0200	0.0000
30	0.0000	0.0000

9. Annual Rate of Mortality

It is assumed that both preretirement and postretirement mortality are represented by the RP-2000 Mortality Table for males and females. Mortality for disabled members is represented by the RP-2000 Mortality Table set forward two years for all disabled members.

10. Service Retirement

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages:

Sex	Male	Female	Male and Female
<u>Age</u>	<u>General Employees</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
50	0.0100	0.0150	0.02000
51	0.0100	0.0150	0.02000
52	0.0100	0.0200	0.02000
53	0.0100	0.0250	0.05000
54	0.0200	0.0250	0.07500
55	0.0200	0.0550	0.15000
56	0.0250	0.0650	0.10000
57	0.0250	0.0650	0.10000
58	0.0500	0.0650	0.10000
59	0.0650	0.0650	0.15000
60	0.0120	0.0500	0.20000
61	0.2000	0.1300	0.20000
62	0.3000	0.1500	0.25000
63	0.2500	0.1250	0.25000
64	0.2200	0.1800	0.30000
65	0.4000	0.1500	1.00000
66	0.2500	0.2000	1.00000
67	0.2500	0.2000	1.00000
68	0.3000	0.2500	1.00000
69	0.3000	0.2000	1.00000
70	1.0000	1.0000	1.00000

11. Annual Rate of Disability Prior to Retirement

Based on an analysis of experience, the assumed annual rates of disability may best be illustrated by the following probabilities at the following ages:

<u>Attained Age</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
20	0.0001	0.0001
30	0.0003	0.0003
40	0.0010	0.0030
50	0.0019	0.0125

In addition, it is assumed for the general employees that 45% of all disabilities are ordinary (55% are service connected). For police and fire employees, 10% of all disabilities are assumed to be ordinary (90% are service connected).

12. Family Composition

It is assumed that 80% of all members will be survived by a spouse and that females (males) are three years younger (older) than members.

13. Administrative Expenses

The normal cost is increased by an amount equal to the anticipated administrative expenses for the upcoming fiscal year. The amount for fiscal year 2004 is \$200,000 and is anticipated to increase at 4.5% per year.

EXHIBIT 7 – GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

1. **Actuarial Accrued Liability**

That portion of the Actuarial Present Value of plan benefits that is not provided for by future employer Normal Costs or employee contributions.

2. **Actuarial Assumptions**

Assumptions as to the occurrence of future events affecting the Retirement System such as:

- Rates of investment returns
- Increases in a member's salary
- Inflation
- The probability of mortality, turnover, disablement
- Retirement at each age and other relevant items

3. **Actuarial Cost Method**

A procedure for allocating the Actuarial Present Value of pension plan benefits between Normal Cost and Actuarial Accrued Liability.

4. **Actuarial Present Value**

The single sum amount required at the valuation date that is required to provide for anticipated future events based upon the terms of the plan and the Actuarial Assumptions.

5. **Forecast**

A projection of future benefit payments or contribution requirements based upon the terms of the plan, the current asset amounts, the Actuarial Assumptions, and additional assumptions as to the replacement of terminating employees with new employees.

9. Normal Cost

That portion of the Actuarial Present Value of future benefits that is assigned to the current year.

10. Unfunded Actuarial Accrued Liability

That portion of the Actuarial Accrued Liability that is not provided for by current actuarial value of assets.

11. Valuation Method

The method used to divide the cost of future benefits among the Actuarial Accrued Liability, the current year's Normal Costs, and future years' Normal Costs. The resulting current funding requirement is then determined as the current year's Normal Cost plus the payment necessary to amortize the Unfunded Actuarial Liability.

12. Vested Liability

That portion of the Actuarial Present Value of Accrued Benefits that a member would be entitled to if the member terminated employment with the employer as of the valuation date.

CERTIFICATION:

This report fairly represents the actuarial position of the Town of Watertown Contributory Retirement System contributing as of January 1, 2004, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial accrued liability and normal cost is reasonably related to plan experience and to reasonable expectations, and represents our best estimate of anticipated plan experience.

Mellon Human Resources & Investor Solutions

Daniel W. Sherman, ASA, MAAA
Enrolled Actuary No. 02-4086

December 2004